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National Algae Centre Project

Executive summary

The National Algae Centre project (the Centre) will scale up Cawthron's algae-based R&D projects from benchtop to a pilot plant in the Top of the South Island region. The total cost of the project is $[redacted] with Cawthron seeking $[redacted] in funding from the Provincial Growth Fund (PGF) via a grant. The remaining $[redacted] will be provided by the applicant.

The project will create [redacted] direct jobs, as well as [redacted] on site jobs during the construction of the Centre. Jobs at the pilot plant will be high paying when compared to regional and national averages, evidenced by Cawthron's existing employment figures.

There is strong potential, should projects developed through the pilot plant continue to show similar promise to that seen at bench top scale, to further develop this expansion through the establishment of a commercial scale plant. This would lead to significant additional employment opportunities in the region, again, with strong wage and salary levels.

Cawthron has noted that a regional opportunity exists to work with Nelson Marlborough Institute of Technology to expand the educational offering relating to aqua-culture - providing educational pathways for the region's existing and future workforce. This development work is currently being explored by the two organisations.

The pilot plant would act as a bridge between science and industry. Importantly, the applicant has successfully implemented this model previously with 'The Farm'. The Farm is a facility based just outside Nelson and offers commercial entities the opportunity to co-locate with Cawthron – feeding off Cawthron's research and further developing their products via science.

There is strong support from the region for the project and there has been significant consultation with local iwi.

As a national research initiative, it is recommended that the Crown should retain some form of ownership of the commercial asset, intellectual property, and infrastructure associated with the project.

Recommendation

Project description & benefits	Risks	Total cost of project	Appropriation and amount to be approved	Recommendation
National Algae Centre – pilot plant creating [redacted] high pay jobs and an additional [redacted] indirect jobs.	• A need for commercial contracts for product and ongoing development	$[redacted]	[redacted]	Approve

Project overview

36. Cawthron is seeking funding to scale up their pipeline of algae-based R&D projects from benchtop to pilot plant, a well-established pathway for product development.

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37. Cawthron has a pipeline of potential products at varying stages of development, and will continue to develop new algae-based research that will feed a forward facing work programme – ensuring the pilot plant has a secured work stream following its commissioning.

38. The project could lead to the establishment of a full-scale production plant, making the pilot plant a strong catalyst for economic growth via Commercial Information (from one of Cawthron's European Pharmaceutical partners), on top of the benefits the pilot plant itself will generate.

39. A time imperative exists. Cawthron have been working with an existing client on a project that shows considerable promise. The algae extract has been proven at bench top scale and is now requiring scale up. An opportunity window exists to undertake this work in New Zealand, with a clear path to market established for a pharmaceutical product. Commercial Information Commercial In. To achieve this goal, the pilot plant must be established to fit the development timeframe. This requires a construction plan and execution through 2018-20.

Regions covered by proposal

40. The project is in the Top of the South region.

Local support for proposal

41. The project has letters of support from the Mayors of Nelson and Tasman, and the CEOs of Nelson Regional Economic Development, Nelson Chamber of Commerce and Marlborough District Council.

42. Consultation has been undertaken with local iwi, most prominently:

    a. Ngāti Koata
    b. Ngāti Toa
    c. Ngāti Tama
    d. Ngāti Rarua
    e. Rangitane
    f. Te Atiawa
    g. Ngāti Apa kit e Raa Too

Key milestones and outputs

43. Design work for the centre is planned to be finished in December 2018, with consenting process finishing in March 2019. Construction will be finished in June 2020 with commissioning of the facility in August 2020.

Management and governance

44. Cawthron has strong governance processes and this project will be undertaken using its standard structures. Cawthron has provided a detailed outline for:

    a. Delivery methodology
    b. Roles and responsibilities

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c. Procurement

d. Risk Management

e. Governance

Cost and funding sources

45. The National Algae Centre project has a total cost of $[Commercial] to construct the facility with the following contributions:

a. Provincial Growth Fund ($[Commercial] – to be confirmed)

b. Cawthron ($[Commerc] - confirmed)

Assessment against the PGF criteria

Criteria	✓	Comment
Sustainable regional economic development	✓	The Centre itself would be expected to run a modest surplus, in line with Cawthron's overall surplus levels. Cawthron has estimated returns for the first three years. Should a commercial plant be established, a strong number of additional positions will be created.
Productivity and innovation	✓	The development of this pilot facility will act as a strong bridge between science and industry and will help to unlock potential productivity opportunities for the region and New Zealand.
Increased employment, training or work readiness for the sectors workforce	✓	[Comme] new FTEs will be generated in the establishment of the pilot plant. Cawthron is also working with Nelson Marlborough Institute of Technology (NMIT) to develop educational pathways. This will provide the region's youth and existing workforce to gain tertiary skills associated with aquaculture.
NZ's ability to meet climate change commitments		N/A
Maori aspirations for utilising land and other resources and achieving cultural objectives	✓	While not directly related to this project, Māori are heavily involved in this sector and work with Cawthron on several projects.

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Additionality	✓	Cawthron has been working with algae development for 30 years. As such, this project further develops the value chain building on existing IP.
Connections and alignment with regional priorities	✓	The project has strong regional support and the development of the 'Blue Economy' is noted as a priority in the regional plan. Aquaculture in the Top of the South is an established industry displaying competitive advantage.
Environmental sustainability and/or productivity of natural assets	✓	Cawthron's work seeks to generate sustainable benefits from the 'Blue Economy' via R&D and industry support.

Benefits

46. It is estimated that the project will result in an additional [redacted] staff at Cawthron and an additional [redacted] new local support jobs as well as [redacted] on site jobs during the construction process over 2019/20.

47. Also, the creation of a new specialist export industry built around high-value products.

Risks

48. The following risks and mitigations have been identified:

Risk	Mitigation
Commercial contracts for product and ongoing development will not eventuate	The commercial contracts for product are multi-year and the relationships Cawthron has with these companies are long-standing.
Crossover with NIWA research in this area	It is important to ensure that PGF funding for this project does not adversely affect NIWA's existing and future interests in algae research.

49. The applicant has provided a highly detailed risk register. The PDU has assessed this and is satisfied the applicant has clearly understood and articulated the risks associated with this project.

50. The IAP expressed concern that the project could be funded by industry. The PDU noted this option through the assessment process and discussed this point with the applicant. Cawthron desires to keep the pilot plant under their control to ensure the research agenda is not in any way influenced by a commercial/ cornerstone investor.

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Next steps

51. Subject to Ministers agreement to the National Algae Centre (Cawthron) project, the next steps are as follows:

    a. PDU to negotiate terms and conditions for an ownership stake in the pilot plant as consideration for the $Commercial investment.

    b. Development of a detailed project plan.

    c. PDU to undertake due diligence on construction contractors to this project